Remarks

Claims 1-4, 6-29, 31, and 32 are pending. No amendments are presented with this Response. Claims 1-4, 6-29, 31, and 32, remain pending.

Applicants respectfully request reconsideration and further examination of the application in view of the remarks below.

Telephonic Interview

Applicants gratefully acknowledge the telephonic interview between Examiner Rutledge and Applicant's undersigned representative, Paul J. Parins, on July 5, 2007, in connection with the above-identified patent application.

Independent claims 1, 9, 22, 29, 31, and 32, and the Sugawara et al. reference were discussed. No clear resolution was reached. Examiner Rutledge indicated that she would reconsider the rejections of record after a response to the outstanding Office Action was filed.

Mr. Parins also clarified that claims 10-20, 27, and 28, stand rejected over Sakai et al. in view of Sugawara et al. and Nguyen.

On August 2, 2007, Examiner Rutledge telephoned to inquire about whether a controller stopped and exited serial control upon receiving the interrupt signal feature of independent claims 1, 9, 22, 29, 31, and 32. Mr. Parins referred Examiner Rutledge to pages 3 and 4 of Applicants' Response filed on April 10, 2006, which indicates that a controller stops and exits serial control upon receiving the interrupt signal and that the controller re-enters serial control after executing one or more process commands.

Claim Rejections Under 35 U.S.C. §103

Claims 1-4, 9-20, 22, 27-29, 31 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Sakai et al. (U.S. Pat. No. 6,168,665) in view of Sugawara et al. (U.S. Pat. No. 5,499,193) and Nguyen (U.S. Pat. No. 6,168,672).

Claims 1-4, 9, 22, 29, 31, and 32

The rejection of claims 1-4, 9, 22, 29, 31, and 32, is traversed.

Independent claims 1, 9, 22, 29, 31, and 32, each feature interrupting serial control with an interrupt signal to execute a process command in the context of applying a developer

solution via spin coating. Interrupting serial control in the context of applying a developer solution via spin coating can reduce or eliminate time delays associated with serial control that are on the order milliseconds (see the specification at, e.g., page 4, lines 22-31, and page 6, lines 19-28). Reducing a millisecond-range time delay may at first seem to be insignificant, but it has been found to be significant when dealing with small dimensions and tolerances associated with modern spin-coated materials (see the specification at, e.g., page 4, line 22, to page 5, line 15).

It is noted that independent claims 1, 9, 22, and 29, each feature a hardware interrupt signal. Exemplary components that can provide a hardware interrupt signal are featured in dependent claim 6 (i.e., a sensor, a controller, a pump, a dispenser, a turntable, and a timer).

The Sakai et al. reference has not been shown to disclose the interrupt control feature of claims 1, 9, 22, 29, 31, and 32, described above. Indeed, the Sakai et al. reference was relied on in the Office Action for showing a basic method and apparatus for spin coating a developer solution (see the outstanding Office Action at page 2, paragraph 2, and the Office Action mailed July 6, 2006, at page 2, paragraph 2).

The Sugawara et al. reference does not support a rejection of independent claims 1, 9, 22, 29, 31, and 32. There is no reason that one of skill would have combined the Sugawara et al. reference with the Sakai et al. reference so as to interrupt serial control with an interrupt signal to execute a process command in the context of spin coating a developer solution because Sugawara et al. disclose manually interrupting a chemical synthesis process to change one or more process parameters via manual key operation (see col. 1, lines 10-18, col. 22, line 5 to col. 23, line 35, and Figure 20). In more detail, Sugawara et al. describe executing a manual key operation during a chemical synthesis procedure, where the manual key operation includes changing the setting of the reaction, concentration time, changing the analysis starting and completing time, and changing the conditions of the purifying time (see col. 22, lines 11-14 and lines 18-26). There would have been no benefit to use the manual interrupt procedure of Sugawara et al. to interrupt serial control in the context of applying a developer solution via spin coating because the manual interrupt procedure of Sugawara et al. is too slow to reduce millisecond range time delays that are associated with serial control. Indeed, the Sugawara et al. interrupt procedure functions to manually change process parameters via key operations.

In addition, combining the Sugawara et al. reference with the Sakai et al. reference does not support a rejection of the hardware interrupt signal feature of claims 1, 9, 22, and 29 because Sugawara et al. do not describe a hardware interrupt signal and there would have been no reason for one of skill to modify Sugawara et al. with a hardware interrupt signal so as to interrupt serial control and execute a process command in the context of spin coating a developer solution because the manual interrupt of Sugawara et al. functions to manually change process parameters via key operations. As described above, Applicants hardware interrupt signal feature functions to reduce or eliminate millisecond range time delays associated with serial control.

Applicants submit that the portion of the rejection of independent claims 1, 9, 22, 29, 31, and 32, that is based on the Nguyen reference is improper under 37 C.F.R. §1.104(c)(2) because the Nguyen reference is a complex reference, the particular part of the Nguyen reference that is relied on by the Office Action is not designated, and the pertinence of the Nguyen reference is not clearly explained.

The Nguyen reference is a complex reference as is readily evident from its title "Method and Apparatus for Automatically Performing Cleaning Processes in a Semiconductor Wafer Processing System," fifteen Figures, and almost fifteen columns of description. With respect to the rejection of independent claims 1, 9, 22, 29, 31, and 32, the entire analysis based on the Nguyen reference is that "Nguyen is cited because the reference broadly teaches the use of interrupt signals and timers to control various features in the process method" (see page 2, paragraph 2 of the outstanding Office Action). The Office Action fails to cite the particular part of the Nguyen that is relied on for rejecting independent claims 1, 9, 22, 29, 31, and 32. The Office Action also fails to clearly explain the pertinence of citing the Nguyen reference. For example, the Office Action merely mentions that Nguyen discloses interrupt signals but cites the Sugawara et al. reference in support of the rejection of the interrupt feature of claims 1, 9, 22, 29, 31, and 32 (see page 2, paragraph 2 of the outstanding Office Action and page 2, paragraph 2 of the Office Action mailed July 6, 2006). Why the Nguyen reference is also being cited is not clearly explained.

Applicants request that the rejection of claims 1-4, 9, 22, 29, 31, and 32, be withdrawn, or, in the alternative if a rejection of claims 1-4, 9, 22, 29, 31, and 32, is maintained that the basis for the rejection be provided in accordance with 37 C.F.R. §1.104(c)(2) in a non-final Office Action that allows the Applicants the ability to respond to any such presented rejection.

Claims 10-20, 27, and 28

The rejection of claims 10-20, 27, and 28, over Sakai et al. in view of Sugawara et al. and Nguyen is traversed as improper under 37 C.F.R. §1.104(c)(2) because the Sakai et al., Sugawara et al., and Nguyen references are complex, the particular parts of any of the Sakai et al., Sugawara et al., or Nguyen references that are relied on by the Office Action are not designated, and the pertinence of any of the Sakai et al., Sugawara et al., or Nguyen references is not clearly explained.

The entire analysis and basis of the rejection of claims 10-20, 27, and 28, is that:

> *The process is a serial process, but different features of the process are carried out in parallel, therefore the dispensing of the solution, control of the speed or rotation of the spin chuck, etc. would be performed in parallel and would use appropriate timers.* (See the outstanding Office Action at page 3, numbered paragraph 2).

Each of independent claims 10, 27, and 28, feature executed process commands at durations measured in parallel from an earlier process event.

In this regard, the outstanding Office Action does not properly indicate the particular parts of any of the Sakai et al., Sugawara et al., or Nguyen references that are relied on, and does not clearly explain the pertinence of any of the Sakai et al., Sugawara et al., or Nguyen references.

Applicants noted a similar deficiency of the Office Action mailed on July 6, 2006, in connection with the rejection of independent claims 10, 27, and 28 (see pages 11 and 13 of Applicants' Response filed on December 1, 2006). The outstanding Office Action does not cure such deficiency.

Applicants request that the rejection of claims 10-20, 27, and 28, be withdrawn, or, in the alternative if a rejection of claims 10-20, 27, and 28, is maintained that the basis for the rejection be provided in accordance with 37 C.F.R. §1.104(c)(2) in a non-final Office Action that allows the Applicants the ability to respond to any such presented rejection.

Claims 6-8 and 21-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Sakai et al. in view of Sugawara et al. and Nguyen as applied to claims 1-4, 9, 22, 29, 31, and 32 above, and further in view of Fujimoto et al. (U.S. Pat. No. 6,391,111).

Dependent claims 6-8

The rejection of dependent claims 6-8 is rendered moot in view of the above considerations with respect to base claim 1 (from which claims 6-8 depend). It is additionally noted that the Office Action has not shown the Fujimoto et al. reference to render obvious the interrupt feature of base claim 1. Indeed, the Office Action merely refers to the Fujimoto et al. reference as having "a spin coating process and uses monitoring means such as sensors to control the process." (See the outstanding Office Action at page 3, numbered paragraph 3).

Applicants request that the rejection of claims 6-8, be withdrawn, or, in the alternative if a rejection of claims 6-8, is maintained that the basis for the rejection be provided in accordance with 37 C.F.R. §1.104(c)(2) in a non-final Office Action that allows the Applicants the ability to respond to any such presented rejection.

Independent claim 21

The rejection of claim 21 is traversed for considerations similar to independent claims 1, 9, 22, 29, 31, and 32, discussed above, and improper under 37 C.F.R. §1.104(c)(2) because the Fujimoto et al. reference is complex and the particular part(s) of the Fujimoto et al. reference that are relied on by the Office Action are not designated.

The Fujimoto et al. reference is a complex reference as is readily evident from its twenty-two Figures, and almost nineteen columns of description.

Independent claim 21 includes many features such as, *inter alia*, a hardware interrupt that is sent to the process control system to execute an interrupt service routine.

In this regard, the outstanding Office Action merely states "Fujimoto et al. is cited because the reference has a spin coating process and uses monitoring means such as sensors to control the process." (See the outstanding Office Action at page 3, numbered paragraph 3). The outstanding Office Action does not properly indicate the particular part(s) of the Fujimoto et al. reference that are relied on.

Applicants request that the rejection of claim 21, be withdrawn, or, in the alternative if a rejection of claim 21 is maintained that the basis for the rejection be provided in accordance with 37 C.F.R. §1.104(c)(2) in a non-final Office Action that allows the Applicants the ability to respond to any such presented rejection.

Independent claim 22

This rejection of claim 22 is traversed for considerations discussed above with respect to the rejection of claim 22 over Sakai et al. in view of Sugawara et al. and Nguyen, and improper under 37 C.F.R. §1.104(c)(2) because the Fujimoto et al. reference is complex and the particular part(s) of the Fujimoto et al. reference that are relied on by the Office Action are not designated.

The deficiency of the Office Action with respect to rejecting claim 22 based on the Fujimoto et al. is similar to that as described above with respect to claim 21.

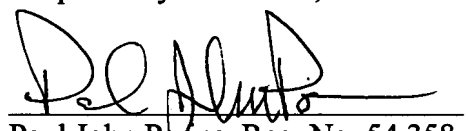
Applicants request that the rejection of claim 22, be withdrawn, or, in the alternative if a rejection of claim 22 is maintained that the basis for the rejection be provided in accordance with 37 C.F.R. §1.104(c)(2) in a non-final Office Action that allows the Applicants the ability to respond to any such presented rejection.

Conclusion

It is respectfully submitted that the claims and the present application are in condition for allowance. Approval of the application and allowance of the claims are earnestly solicited.

In the event that a phone conference between the Examiner and the Applicants' undersigned attorney would help resolve any remaining issues in the application, the Examiner is invited to contact the undersigned at (651) 275-9831.

Respectfully Submitted,

By: 

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Dated: August 13, 2007

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